



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/630,586      | 07/30/2003  | Nobuaki Nagao        | 62478-6017          | 1625             |

21611 7590 01/24/2007  
SNELL & WILMER LLP  
600 ANTON BOULEVARD  
SUITE 1400  
COSTA MESA, CA 92626

|          |
|----------|
| EXAMINER |
|----------|

CHANG, KENT WU

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2629

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 01/24/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/630,586

Applicant(s)

NAGAO ET AL.

Examiner

Kent Chang

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 51-78 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 51-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :7/30/03, 9/17/03, 9/22/03, 1/27/06, 3/23/06, 11/13/06, 12/12/06, and 1/16/07 .

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species 3 in the reply filed on 10/17/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Information Disclosure Statement***

2. The references listed in the Information Disclosure Statement submitted 7/30/03, 9/17/03, 9/22/03, 1/27/06, 3/23/06, 11/13/06, 12/12/06, and 1/16/07 have been considered by the examiner (see attached PTO-1449).

### ***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/786,384, filed on 7/19/1999.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2629

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 50-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (see pages 1-5 and Figures 1-4), hereafter AAPA, in view of Yamamoto et al (US Patent No. 5,142,200), hereafter Yamamoto.

On pages 1-5, applicant admits that a conventional plasma display apparatus comprising: a plasma display panel (PDP) that includes a plurality of pairs of a first electrode and a second electrode; and a plurality of discharge cells, each discharge cell having one of the pairs of the first electrode and the second electrode; and a driving circuit operable to drive the plasma display panel by

repeating a set-up period of applying a set-up pulse to the discharge cells, and a write period of applying a write pulse to selected discharge cells of the plurality of discharge cells based on image data input, wherein the driving circuit is operable to apply, during the set-up period, the set-up pulse having a rectangular shape (see the set-up pulse in Figure 4) via the first electrodes, and wherein the driving circuit is operable to apply, during the write period, the write pulse to the selected discharge cells via the first electrodes. The conventional plasma display does not show that the set-up pulse having a waveform that rises at an average voltage change rate of no less than  $1 \text{ V}/\mu\text{s}$  and no greater than  $9 \text{ V}/\mu\text{s}$  and that starts to fall at a rate greater than the average voltage change rate at a time of the rising.

However, in the same field of endeavor for driving a plasma display device using a pulse, Yamamoto teaches to change the driving pulse having a rectangular shape in the conventional method to a waveform that rises at an average voltage change rate and that starts to fall at a rate greater than the average voltage change rate at a time of the rising so as to increase the margin of the driving pulse in a large size display panel due to the increase of inductance in the electrodes and interelectrode capacitance (see column 1 lines 15-23).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the driving pulse having a rectangular shape in the conventional method to a waveform that rises at an average voltage change rate and that starts to fall at a rate greater than the average voltage change

Art Unit: 2629

rate at a time of the rising as taught by Yamamoto so as to increase the margin of the driving pulse in a large size display panel due to the increase of inductance in the electrodes and interelectrode capacitance. Obviously, this modification would have also applied to the set-up pulse, writing pulse, or sustain pulse so as to increase the margin of these pulses due to the increase of inductance in the electrodes and interelectrode capacitance caused by these pulses.

Furthermore, Yamamoto teaches to use 20 to 150  $\mu\text{s}$  as the rising time of the pulse to substantially reach the driving voltage of 150 voltages (column 5 line 24 to column 6 line 2), which is at an average rate of about 1 V/ $\mu\text{s}$  to 7.5 V/ $\mu\text{s}$ .

Obviously, any average rate in any range, such as at an average rate of 1 V/ $\mu\text{s}$  to 2.1 V/ $\mu\text{s}$ , an average rate of 2.1-2.625 V/ $\mu\text{s}$ , an average rate of 2.625-3.5 V/ $\mu\text{s}$ , could have been used so as to ensure driving the PDP to achieve the best performance.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schlig et al (US Patent No. 4,104,563).

### **CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Chang whose telephone number is 571-272-7667. The examiner can normally be reached on Monday to Thursday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached at 571-272-3638.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**571-273-8300**

Hand-delivered responses should be brought to the Customer Service Window, now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kent Chang  
Primary Examiner  
Art Unit 2629

kc  
1/21/07